



UHMS Guidelines for Credentialing, Privileging and Supervision of Hyperbaric Oxygen Treatment in the U.S.A.

Undersea and Hyperbaric Medical Society

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Mission of the UHMS

- To provide a forum for professional scientific communication among individuals and groups involved in basic and applied studies concerned with life sciences and human factors aspects of the undersea environment and hyperbaric medicine.
- To promote cooperation between the life sciences and other disciplines concerned with undersea activity, hyperbaric medicine and wound care.
- To develop and promote educational activities and other programs, which improve the scientific knowledge of matters related to undersea and hyperbaric environments and the accepted applications of hyperbaric oxygen treatment for the membership, as well as physicians and allied health professionals, divers, diver technicians and the public at large.
- To provide a source of information and support in the clinical practice of hyperbaric medicine and to stay abreast of legislative, legal, and regulatory changes in the field.
- To provide a means by which hyperbaric facility directors/owners will have an opportunity to request an accreditation survey of their facility for safety, staffing and verifying the adequacy of the professional medical application of hyperbaric treatment.

PART I

Introduction

This document provides health care professionals, hospitals, health care systems and non-hospital affiliated centers with credentialing and privileging guidelines for providers who attend hyperbaric oxygen treatments (HBO₂). The goal is to ensure optimal patient safety and the appropriate utilization of hyperbaric medicine.

Definition and Description of Clinical Hyperbaric Oxygen Treatment:

In the United States, the discipline of hyperbaric oxygen has been recognized by both the American Board of Emergency Medicine (ABEM) and the American Board of Preventive (ABPM) as warranting the status of a subspecialty under each of their specialty umbrellas. The description of this discipline in the United States and all other countries should begin with the basic scientific definition of the essential elements of hyperbaric oxygen (HBO₂) treatment. However, to understand the complexities of its appropriate practice and to recognize and condemn the unfortunate proliferation of unsafe centers and unproven practices, it is necessary to append the additional

explanatory paragraphs that follow, which go beyond the simple scientific definition. The definition is not meant to stand on its own without these additional refinements.

Scientific Definition of Hyperbaric Oxygen (HBO₂) Treatment

Hyperbaric oxygen treatment is the treatment of a disease or medical condition by the inhalation of near-100% (at least 95%) medical grade oxygen* at pressures greater than 1 atmosphere absolute (ATA) (101.3 kilopascals (kPa)) in a pressure vessel constructed for that purpose. However, in certain instances at chamber treatment pressures above 3.0 ATA, oxygen levels are reduced below 100% to achieve a partial pressure of oxygen of at least 1.2 ATA and lower than 3.0 ATA, to avoid oxygen toxicity.

*Medical grade oxygen should meet USP (US Pharmacopeia) or national equivalent standard for purity.

Safe Delivery and Proven Hyperbaric Oxygen Applications

Scientifically supported hyperbaric treatments are usually delivered at pressures between 1.9 to 3.0 ATA.** HBO₂ treatment is a standard of care for many medical conditions, including decompression sickness, carbon monoxide poisoning, diabetic wounds, delayed radiation injury, necrotizing fasciitis, gas gangrene, refractory osteomyelitis, and several other conditions proven by peer-reviewed research. Treatment chambers should be designed, constructed, operated, and certified to the standards established by the NFPA (National Fire Protection Association) and ASME PVHO-1 (American Society of Mechanical Engineers-Safety Standard for Pressure Vessels for Human Occupancy) or other internationally equivalent regulatory agencies. The Undersea and Hyperbaric Medical Society (UHMS) has established criteria for the accreditation of hyperbaric treatment facilities designed to ensure safe and clinically appropriate treatments. Most disorders require a series of treatments delivered daily for several weeks. These treatments should be prescribed and supervised by qualified physicians with appropriate training.

**Hyperbaric oxygen has been under study for traumatic brain injury in several randomized controlled trials. Although one of these studies is a positive trial at a treatment pressure of 1.5 ATA, such treatments are at this time considered investigational.

Unproven Hyperbaric Treatment (Often Termed “Mild Hyperbaric Oxygen”)

Hyperbaric treatment at minimally elevated chamber pressures (mild hyperbaric oxygen) is unproven. Mild hyperbaric oxygen treatment is currently considered to be exposure delivered at pressures lower than 1.5 ATA. Most clients in “mild hyperbaric chambers” receive breathing gas mixes well less than 95% O₂, often delivered through

breathing devices such as masks that do not provide a tight seal and by the nature of their construction, allow mixing of gases with the ambient chamber air, further reducing the oxygen concentration. Unfortunately, these treatments have become widely available in so-called “wellness centers” and health spas outside the setting of medical facilities, including physicians’ offices. Generally, these treatments are not physician-prescribed or supervised. The recent interest in and commercial growth of these treatments has led to the use of unsafe and unapproved chamber vessels outside medical facilities and often in commercial properties in malls or shopping centers. These facilities often operate without the appropriate adherence to fire safety and chamber construction standards, putting those exposed at risk for serious injury and even death. These facilities typically deliver sessions in these low-pressure vessels for a spectrum of medical disorders or complaints, including those for which standard hyperbaric medicine has been found to be effective, but also including disorders for which there is no scientific proof for any type of hyperbaric oxygen treatments.

In recognition of the need for meticulous scrutiny of emerging clinical applications of HBO₂, the UHMS established the Hyperbaric Oxygen Treatment Committee in 1976. The committee is charged with the responsibility of continuously reviewing research and clinical data and rendering recommendations regarding clinical efficacy and safety of HBO₂. To achieve this goal, the multispecialty committee is composed of practitioners and scientific investigators in the fields of internal medicine, infectious diseases, pharmacology, emergency medicine, general surgery, orthopedic surgery, trauma surgery, thoracic surgery, otolaryngology, oral and maxillofacial surgery, anesthesiology, pulmonology, critical care, radiation oncology, and aerospace medicine.¹

Since 1976, the committee has met annually to review research and clinical data. From the twenty-eight (28) indications for which third-party reimbursement was recommended in the 1976 and 1979 reports, the number of accepted indications has been refined to fourteen (14) in the current report. These indications are those for which *in vitro* and *in vivo* pre-clinical research data as well as extensive positive clinical experience and study have become convincing.¹

UHMS Accepted Indications:

1. Air or gas embolism
2. Carbon monoxide poisoning / Carbon monoxide poisoning complicated by cyanide poisoning
3. Clostridial myositis and myonecrosis (gas gangrene)

4. Crush injuries, compartment syndrome and other traumatic ischemias
5. Decompression sickness
6. Arterial Insufficiencies
 - a. Central retinal artery occlusions
 - b. Selected problem wounds – diabetic ulcers (microvascular insufficiency)
7. Severe anemia
8. Intracranial abscesses
9. Necrotizing infections
10. Osteomyelitis (refractory)
11. Delayed radiation injury (soft tissue and bony necrosis)
12. Compromised grafts and flaps
13. Acute thermal burn injury
14. Idiopathic sudden sensorineural hearing loss

The diversity of conditions amenable to hyperbaric oxygen treatment necessitates a broad educational foundation that can encompass the scope of all of these indications. Specialty training in hyperbaric medicine is essential to ensure the appropriate utilization of this therapeutic modality. Proper patient selection, management of potential complications, as well as the myriad comorbid conditions that are frequently present in these patient populations, are all aspects of this specialty that require additional education and training. HBO₂ entails inherent risks. In addition to the specific systemic influences of pressure and oxygen, the patients undergoing treatment frequently have serious multisystem comorbidities. For physicians, experience in both chronic and urgent HBO₂ indications is essential as a patient's status frequently changes during the treatment course and the physical barrier of a chamber hinders immediate direct patient contact. It is paramount that the provider holds a broad base of global medical expertise to be able to anticipate, identify, mitigate and treat potential systemic complications.

For hyperbaric facilities, formal accreditation recognized by the Joint Commission – such as the UHMS accreditation program, which demonstrates proper staff training and facility policies and procedures – is strongly recommended.

Military services and other government organizations with operational Hyperbaric Medicine should establish their own specific guidelines for training and credentialing. The guidelines in this document should be applicable to military and government physicians and APPs who are practicing clinical Hyperbaric Medicine.

PART II

Education Stratifications in Undersea and Hyperbaric Medicine

Board Certification in Undersea and Hyperbaric Medicine (UHM)

To become board-certified in hyperbaric medicine, physicians complete twelve (12) months of UHM fellowship training in a hyperbaric medicine program accredited by the Accreditation Council for Graduate Medical Education (ACGME) or American Osteopathic Association (AOA)^{4,5}.

The American Board of Medical Specialties (ABMS) recognizes UHM as a subspecialty of both Emergency Medicine and Preventive Medicine. The American Board of Emergency Medicine (ABEM) and the American Board of Preventative Medicine (ABPM) grant board certifications to physicians in Undersea and Hyperbaric Medicine (UHM). The American Osteopathic Board of Preventive Medicine (AOBPM), American Osteopathic Board of Emergency Medicine (AOBEM), the American Osteopathic Board of Family Physicians (AOBFP), and the American Osteopathic Board of Internal Medicine (AOBIM) grant a Certificate of Added Qualifications (CAQ) in UHM^{4,5}.

The ABMS and AOA require a primary board certification to be eligible for initial board certification or CAQ in UHM. Physicians who have completed a primary residency remain board-eligible (BE) for a period of time and are eligible to practice medicine and enroll in a UHM fellowship or UHMS PATH program.

Upon successful completion of UHM board certification, doctors of medicine and doctors of osteopathic medicine (MD/DOs) are required to complete a minimum number of Maintenance-of-Certification (MOC) credits (the number and frequency of credit hours are determined by the ABEM, ABPM or appropriate board of Osteopathic Medicine) and periodically pass a recertification board examination.

Fellowship Training in Undersea and Hyperbaric Medicine

Fellowship training in UHM provides a structured foundation of skills and knowledge in hyperbaric medical practice and provides progressive responsibility and experience in the application of these principles to the management of clinical problems. It is expected that the fellow will develop a satisfactory level of clinical maturity, judgment, and

technical skill that will, on completion of the program, render the fellow capable of independent practice in UHM.³ Upon successful completion of an accredited fellowship, graduates are eligible to become board-certified upon successfully passing the requisite examination.

UHMS 'PATH' (Program for Advanced Training in Hyperbaric Medicine)

In response to the need within the UHM field for advanced education beyond an *Introductory Course in Hyperbaric Medicine*, the UHMS PATH program was created. Because of the definitive closure in 2010 of the “practice pathway” qualification option for board certification eligibility, the UHMS was compelled to create an alternative educational program that would ensure graduates completed a formal education process approved by the UHMS education committee to meet requirements for Certificate of Added Qualification (CAQ).

Most physicians within the field of hyperbaric medicine are reluctant to leave an active practice in order to complete a 12-month fellowship, which contributes to the relatively small percentage of UHM board certifications amongst hyperbaric medicine physicians. There is also an expanding number of Advanced Practice Providers (APPs) who are ineligible for UHM fellowship training, which further underscored the UHMS' appreciation of an education gap within the field. The UHMS PATH program was created to enable MD/DOs and physician assistants (PAs), and advanced practice registered nurses (ARNPs), including nurse practitioners (NPs) to attain additional mentored education and distinction in UHM.

Upon completion of the PATH, MD/DO candidates will receive a CAQ, whereas PA/APRN (NP) candidates will receive a Certificate of Advanced Education (CAE).² The UHMS PATH CAQ/CAE is intended to demonstrate that a candidate has completed a formal education program covering advanced topics in UHM, along with completion of an in-person “hands on” training course. The UHMS PATH is projected to take between six (6) to twelve (12) months to complete.²

Given that doctors of podiatric medicine (DPMs) are not medically trained to manage systemic medical conditions, complications, or side effects of HBO₂, they are not eligible for enrollment in the UHMS PATH program. Accordingly, the UHMS PATH program is open only to MD, DO, PA, and APRN (NP) candidates who have previously completed, at a minimum, a 40-hour UHMS-approved *Introductory Course in Hyperbaric Medicine*.

While the UHMS PATH program denotes significant educational attainment beyond an

Introductory Course in Hyperbaric Medicine, it does not replace fellowship training and board certification in UHM, which is considered the gold standard for training in UHM.

Specifically:

- The UHMS PATH program provides a CAQ for MD/DO candidates but is not equivalent to American Board of Medical Specialties (ABMS) UHM board certification, American Osteopathic Association (AOA) CAQ, or UHM fellowship training for MD/DO physicians.
- The UHMS PATH program provides a Certificate of Advanced Education (CAE) for APPs (PA and APRN (NP)) but is not equivalent to UHM board certification or UHM fellowship training.

The specific meaning of the term 'CAQ' is a source of some confusion, as the term is inconsistently applied across the medical field. Prior to the creation of the UHMS PATH program, the UHMS offered a CAQ through Stellenbosch University. Individuals who completed this program earned a designation of higher qualification in hyperbaric medicine equivalent to the UHMS PATH program. Within this document, reference to the UHMS PATH CAQ incorporates those individuals who completed the previous UHMS CAQ through Stellenbosch University.^{2,3} The UHMS Board of Directors voted to end the UHMS CAQ through Stellenbosch University in December of 2015, but there remained candidates who had not completed the CAQ or transferred their enrollment to the UHMS PATH. Any candidate pursuing a UHMS CAQ through Stellenbosch University must have completed the course prior to June 30, 2018.

- To help ensure the highest level of training for a CAQ in Undersea and Hyperbaric Medicine, any agency providing a UHM CAQ equivalent must be accredited by the UHMS Education Committee.
- Within the AOA, the designation of CAQ requires completion of an AOA- or ACGME-accredited fellowship and successful examination performance; a process equivalent to ABMS-approved subspecialty board certification.
 - In contrast to the AOA CAQ, the UHMS PATH CAQ *does not* make the awardee eligible for ABMS board certification in UHM, nor does it satisfy the requirements for a CAQ by the AOA.

UHMS-Approved *Introductory Course in Hyperbaric Medicine*

Introductory courses in hyperbaric medicine are the foundational education platform for MD/DOs, APPs (which includes PAs and APRNs (NPs)), other Limited License Providers (such as DPMs), and medical technologists. These courses are prerequisites to certification and constitute the minimum education needed for privileging and credentialing purposes within a hospital or health care system for physician and non-physician providers.

UHMS-approved introductory programs consist of a minimum of 40 hours in topics specific to hyperbaric medicine, including familiarization with hyperbaric equipment/operations demonstration, a final exam, and course evaluation. Only introductory programs that meet this standard and have been approved by the UHMS Education Committee are recognized as a UHMS-approved *Introductory Course in Hyperbaric Medicine*.

PART III

HBO₂ Provider Classifications

There are three (3) functional HBO₂ provider categorizations described in this section.

- Independent Supervisors of HBO₂ and Medical Directors. These are MD/DOs that meet the criteria to independently *attend HBO₂ and supervise/proctor* other providers attending HBO₂.
- Providers (MD/DOs and APPs) who meet the criteria (see Part IV) for attending HBO₂ independently but *do not* possess the appropriate training and/or experience to supervise other providers (as determined by the hospital or healthcare facility credentialing policies).
- Providers undergoing their period of privileging proctorship (see Part V): During proctorship, all providers in this category require in-person, immediate availability of a Medical Director or Independent Supervisor of HBO₂ (as defined below) throughout the entirety of every HBO₂ treatment until they satisfy credentialing criteria to independently attend HBO₂ treatments. Providers in this category include MD/DOs new to the field of UHM; experienced MD/DO UHM physicians transferring from another HBO₂ practice but within their period of privileging proctorship; APPs; limited-license DPM providers; MD/DO fellows; and other medical trainees.

Providers who do not meet the criteria for one of these three HBO₂ provider categorizations, regardless of their primary medical credentials (MD/DO, PA, APRN

(NP) or DPM), are not qualified to attend HBO₂ sessions or independently assess a patient's suitability for HBO₂ treatment.

Note i: Attending providers are those directly overseeing a hyperbaric session. This individual is responsible for each patient and staff member who enters the chamber and undergoes treatment or exposure to hyperbaric conditions. Attending providers must remain immediately available (in person) to patients throughout the entirety of an HBO₂ treatment or session.

- *Attending* an HBO₂ treatment by telephone is unacceptable, as it neither constitutes immediate availability of the attending provider nor appropriate attendance of an HBO₂ treatment.

Independent Supervisors of HBO₂ (MD/DO only)

Independent Supervisors of HBO₂ hold an unrestricted MD/DO license and, based on the criteria detailed in Part IV of this document, may independently *attend* HBO₂ treatments without an additional qualified MD/DO providing direct supervision or being immediately available to respond throughout a patient's HBO₂ treatment. In addition, Independent Supervisors of HBO₂, who have been privileged by the health care facility medical staff to do so, may *supervise* other MD/DO, PA, APRN (NP), DPM, and trainee providers who do not qualify to independently attend HBO₂ treatments.

Medical Directors for HBO₂ (only MD/DO providers qualified as Independent Supervisors of HBO₂)

The role of Medical Director includes both clinical and administrative duties and denotes an individual with subject matter expertise of a depth and breadth commensurate with the responsibilities to both independently attend HBO₂ sessions and supervise other providers in the department. As such, the expectation of the UHMS is that the individuals in this role have completed a primary residency (board certification preferred) AND training in hyperbaric medicine beyond an *Introductory Course in Hyperbaric Medicine*. Medical Directors shall meet all of the requirements necessary to qualify as an Independent Supervisor of HBO₂ (see Part IV), with the strong recommendation that they complete advanced education in hyperbaric medicine (see Part IV). The recommended standard is board certification in UHM by the American Board of Medical Specialties (ABMS) or CAQ conferred on Osteopathic Physicians by one of the above-stated American Osteopathic Boards. Integral to the Medical Director's role is the establishment of proctorship standards (see Part V) and ensuring that the providers in the department satisfy all the education and training requirements as defined below.

- MD/DO providers who have not met the recommended hyperbaric medicine education, training, and experience standards as described above and in Part IV are discouraged from assignment as the Medical Director of either a Hyperbaric Medicine Center/Department or, if an integrated program, a Hyperbaric Medicine and Wound Care Center/Department. While a provider's credentials may be consistent with the requisite background to oversee a Wound Care Center/Department, it does not directly translate into a concurrent qualification to oversee a Hyperbaric Medicine Program. For the latter, a commensurate degree of UHM education and training beyond that of an *Introductory Course in Hyperbaric Medicine* is strongly advised. Similarly, APPs and DPMs should not hold Medical Director of HBO₂ positions, as their limited licenses or non-systemic scope of practice preclude them from supervising MD/DOs and other providers.
- *The UHMS strongly encourages ABMS/AOA board certification in UHM prior to facility designation as either Medical Directors for HBO₂ or UHM-Provider Proctors.*

Physicians Undergoing Fellowship Training in Undersea and Hyperbaric Medicine

Fellowship programs must demonstrate that the appropriate level of supervision is in place for all fellows who care for patients. Specific types of supervision are delineated in the ACGME Program Requirements Guide in Undersea and Hyperbaric Medicine.³ The privilege of progressive authority and responsibility, as it relates to the relative independence of a fellow, is determined by the program director and faculty members.

Advanced Practice Providers Attending HBO₂ (PA, APRN (NP))

HBO₂ is a medical procedure, the *supervision* of which requires an unrestricted medical license. Providing that an APP has satisfactorily completed their period of proctorship and is allowed under the terms of their health care facility's medical staff bylaws, policies, procedures, state laws, and collaborative agreement, an APP *may* be granted privileges to *attend* HBO₂ for patients whose medical/surgical conditions are within their scope of license, education and experience, with the added proviso that an Independent Supervisor of HBO₂ is immediately available by telephone with a reasonable in-person response time according to hospital policy (generally considered to be within 30-40 minutes) while patients are undergoing HBO₂ treatment.

- The attending APP must be immediately available (as defined in Note i) to the chamber at all times throughout the HBO₂ session.

Facilities that wish to provide 24/7 emergency call services and can only do so by augmenting coverage with APPs may do so under the following guidelines:

1. APP must be fully licensed, credentialed and proctored according to the guidelines above.
2. A physician qualified as an independent supervisor of hyperbaric medicine must always be immediately available by telephone and within a reasonable in-person response time according to hospital policy (generally considered to be within 30-40 minutes) as backup. Furthermore, this physician assumes complete responsibility for the safe treatment of the patient.
3. The qualified physician must be available for all initial consultations, preferably in person but minimally by telephone and is responsible for establishing the care plan prior to the first treatment, and always physically available according to details in item #2.
4. APPs in the hyperbaric clinic may be used to augment the physician staff as long as there is a qualified physician medical director that works at the same facility in the same physical location.
5. A hyperbaric medical facility must never be manned solely by APPs and an APP may never assume the role of the Hyperbaric Medical Director.

Part-Time Attending of HBO₂ (MD/DO, PA and APRN (NP))

Many centers rely on part-time providers to cover shifts. The initial education, training, and proctorship requirements for these part-time providers are the same as those as described in Parts IV and V of this document. MD/DOs who have satisfied these education, training, and proctorship requirements may independently attend HBO₂ treatments without the requirement of immediate in-person or telephonic access to a Medical Director or Independent Supervisor of HBO₂. MD/DO providers within this category may or may not satisfy the criteria to supervise other providers. The criteria used to determine suitability for this supervisory role shall be determined by the healthcare facility medical director and in accordance with the facility medical staff bylaws.

APPs attending HBO₂ part-time require immediate telephonic and in-person availability of an Independent Supervisor of HBO₂ with a reasonable in-person response time according to hospital policy (generally considered to be within 30-40 minutes) while patients are receiving HBO₂.

Doctors of Podiatric Medicine (DPM)

The DPM license is limited in scope to musculoskeletal injuries and diseases below the knee. This restricted scope is inconsistent with the medical education and clinical training required to appropriately assess patients being considered for HBO₂ or attend to complications resulting from or associated with HBO₂ treatment (see Parts I and IV). The limited scope of their license also precludes the DPM's ability to evaluate and

monitor staff within a multiplace chamber. Multiplace chambers utilize inside attendants (staff), and the attending provider must be credentialed to assess the medical fitness of *all* individuals entering the chamber prior to, during and after an HBO₂ session.

The UHMS recognizes that there are certain states where DPMs may be able to legally attend HBO₂ treatment. In these states, when a DPM has immediate in-person access to an Independent Supervisor of HBO₂, satisfies the minimum education requirements as outlined in Part IV, and meets their health care system's credentialing procedures (to include completion of a documented period of proctorship), they may be privileged to attend routine monoplace chamber HBO₂ treatments of stable patients with wounds below the knee.

PART IV

Minimum Licensing, Education and Training Standards For Attending Hyperbaric Treatments

The scope of practice for an MD/DO or APP attending HBO₂ must include all components of patient evaluation necessary to evaluate the potential HBO₂ recipient and to ensure that there is no relative or absolute contraindication to treatment (see Part I). The MD/DO or APP attending HBO₂ should be both cognizant of the potential hazards of the treatment and have the capability to immediately assess and appropriately manage complications should they arise. Documented training shall include the education, experience, and expertise necessary to diagnose and treat UHMS-accepted indications as well as complications of HBO₂. Potential complications include tension pneumothorax, respiratory decompensation secondary to aspiration, seizures, acute tympanic membrane injury, recognition and response to signs of oxygen toxicity and hypoxia as well as differentiation of these problems from anxiety or claustrophobia. All potential treatment of medical and surgical emergencies arising in the patient receiving HBO₂ must be within the scope of practice of the attending MD/DO or APP providing direct patient care, and the attending MD/DO or APP shall remain immediately available throughout the entire HBO₂ session (see Notes ii and iii).¹³

- Note ii: Immediate Availability
The *attending* provider shall be immediately available during all phases of hyperbaric treatment, defined as whenever patients are in the chamber under pressure and the door is closed. 'Immediately available' is defined as being in close physical proximity within the same building or connected building or structure, to where HBO₂ treatments are provided and able to personally and physically attend to the chamber-side as soon as requested.
- Note iii: A hyperbaric *session* is defined as a single episode of: patient entry/placement into a chamber (regardless of the number of patients in the chamber at a given time), pressurization of the chamber, and completion of treatment under pressure, followed by depressurization and removal of the patient from the chamber. Each hyperbaric session shall include pre-treatment and post-treatment patient assessments.
 - In monoplace chambers (where one patient is placed in the chamber), each hyperbaric session corresponds to a single treatment.
 - In multiplace chambers (where more than one patient is placed in the chamber), each session may result in multiple 'individual treatments,' as

there is more than one patient undergoing HBO₂. Regardless of the number of patients in the chamber at a given time, the chamber pressurization, treatment and depressurization cycle is still considered only one HBO₂ session.

- Pre-treatment and post-treatment patient assessments may include vital signs, blood sugar measurements, focused physical examinations, and other tests. It is the responsibility of the attending MD/DO or APP to ensure that each patient satisfies the criteria established by the hyperbaric medicine department to receive HBO₂ safely and to document any effects resulting from HBO₂ after each session.

Independent Supervisors of HBO₂ (MD/DO only)

Must hold a valid, unrestricted medical license to practice within their state of jurisdiction and document successful completion of a:

- UHMS-approved *Introductory Course in Hyperbaric Medicine* (minimum standard)
- Proctored experience program in HBO₂ (See Part V)
- UHMS PATH program
 - Completion of education beyond a UHMS-approved *Introductory Course in Hyperbaric Medicine* will become a minimum credentialing standard for the independent supervision of HBO₂ on December 31, 2027.
 - Hyperbaric physicians *not* ABMS/AOA board-certified in the subspecialty of UHM must complete an ACGME-approved fellowship in hyperbaric medicine *or* the UHMS PATH program and obtain a Certificate of Added Qualification (CAQ) in Hyperbaric Medicine within two (2) years of being granted privileges in hyperbaric medicine to maintain/satisfy independent supervisor credentialing criteria.

Medical Directors (MD/DO only)

Must meet all the qualifications required of Independent Supervisors of HBO₂ and the following:

- Current ABMS/AOA board certification in UHM (preferred)
 - Board certification in UHM supersedes the UHMS PATH program. MD/DOs who hold UHM certification through the ABMS/AOA are not required to complete the UHMS PATH program.
- Completion of the UHMS PATH program

Completion of an ABMS/AOA board certification in UHM or the UHMS PATH is mandatory after December 31, 2027.

Candidates should enroll in and begin the PATH program with modules currently available.

The expectation of Medical Directors is that they have attained sufficient training, education, and experience to independently attend HBO₂ sessions, supervise and mentor providers attending HBO₂, create policies and procedures, and a quality improvement process consistent with the standards of the UHMS Accreditation Program.

Advanced Practice Providers (PA and APRN (NP))

Must:

- Hold a valid license to practice medicine (in most states, PAs and many APRNs (NPs) will require an MD/DO 'supervising physician' under whose license they practice).
 - The MD/DO identified to the State Medical Board as the supervising physician for an APP shall be privileged as an Independent Supervisor of HBO₂ within that facility or health care system.
- Document successful completion of a UHMS-approved *Introductory Course in Hyperbaric Medicine* (minimum standard).
- Undergo and document completion of a proctored experience program in HBO₂ treatment (see Part V below).
- Demonstrate immediate access to a Medical Director or Independent Supervisor of HBO₂ during HBO₂ treatments.
- Document successful completion of the UHMS PATH program within two (2) years of being granted privileges in hyperbaric medicine to maintain/satisfy credentialing criteria to attend HBO₂.

Doctors of Podiatric Medicine (DPM)

Only when permitted by applicable state law DPMs *may* be credentialed to attend routine HBO₂ treatment of stable patients, in a monoplace chamber, with wounds below the knee. They must also satisfy the minimum education requirements as outlined below; meet their health care system's medical staff by-laws and credentialing procedures, including a documented period of proctorship; and have immediate in-

person access to an Independent Supervisor of HBO₂. The minimum educational requirements for attending an HBO₂ treatment are:

- Hold a valid license to practice podiatric medicine in their state of jurisdiction
- Successful completion of a UHMS-approved *Introductory Course in Hyperbaric Medicine*

Minimum Standards for HBO₂ Services Other Than HBO₂ Treatment Attendance

MD/DO providers who meet the appropriate education, training, proctorship, and privileging requirements for HBO₂ as otherwise identified herein may provide HBO₂-related clinical services other than the attendance of HBO₂ sessions, to include evaluation of a patient's indication and suitability for receiving HBO₂ treatment.¹³

- Qualified and credentialed non-MD/DO providers may provide medical care other than HBO₂ attendance if such services are included within their state's scope of practice or their required supervision/collaborative agreement is with a physician who is both qualified to provide these HBO₂ services and immediately available to provide supervision of these services when needed.
- APPs performing hyperbaric medicine services must have an unlimited licensed physician immediately available to render assistance if needed (note that the definition of 'immediate availability' stated in this document may differ from the Local Coverage Determination (LCD)).¹³
- The credentialing requirements for DPMs providing patient care outside of HBO₂ attendance, to include pre-treatment and post-treatment assessments and patient assessment for HBO₂ treatment, are beyond the scope of this document.

PART V

Guidelines for Proctored Experience

The proctorship process should be both mentored and competency-based. The recommendations stated below are considered a reasonable standard, but it is understood that competency assessments will vary based on the candidate.

During their proctorship providers are in a restricted form of practice. An Independent

Supervisor of HBO₂ must remain immediately available to this provider and the patient(s) being treated throughout the entire HBO₂ session. 'Immediately available' is defined as close physical proximity within the building or connected building or structure where HBO₂ treatments are provided, with the ability to personally and physically attend to the chamber-side or proctored physician/provider as soon as requested.⁸

Providers New to HBO₂

All HBO₂ providers shall undergo a period of proctored experience after completing a UHMS-approved *Introductory Course in Hyperbaric Medicine* prior to working without direct, in-person oversight by an Independent Supervisor of HBO₂. Health care facilities have discretion to formulate their own criteria/training parameters, but the following guidelines provide a reasonable standard.

- A minimum of five (5) proctored consultations and attend more than twenty-five (25) hyperbaric sessions (see Note iii), which shall be overseen by an appropriately qualified HBO₂ facility Medical Director or other Independent Supervisor of HBO₂.
- Face-to-face supervision should be followed by a review of the subsequent one hundred (100) treatments. This can be accomplished through a chart review or the center's electronic health record as part of a Focused Professional Practice Evaluation (FPPE) process recommended and outlined by The Joint Commission.¹¹

Providers with Previous Experience in HBO₂ from Outside Institutions

Education requirements necessary for the safe and appropriate supervision of HBO₂ treatments have been described above. Proctoring requirements may be modified by the health care facility Medical Director or credentialing/privileging committee if the provider submits evidence of having supervised at least fifty (50) treatments and performed a minimum of five (5) hyperbaric consultations within the last two (2) years, or provides documentation from a training program director or director of a hyperbaric center (i.e., a signed letter with primary source verification) attesting to the demonstration of adequate HBO₂ care case volume and competency during the past two (2) years.⁷

Current Participation in an ACGME-Accredited Fellowship in Undersea and Hyperbaric Medicine (UHM).

Fellowship programs have defined supervision requirements that supersede this document. An excerpt from the ACGME Program Requirements for Graduate Medical Education in Undersea and Hyperbaric Medicine manual is provided above (see Fellowship Training in Undersea and Hyperbaric Medicine).

PART VI

Core Privileges in Hyperbaric Medicine

The following provides guidelines for health care facility core privilege determinations for hyperbaric medicine providers.

HBO₂ Attendance for Stable Patients

Description: Providers adequately credentialed and experienced to use HBO₂ treatment to treat localized injuries to tissues and wounds (consider for MD/DOs and APPs new to HBO₂ or not qualified by either their training or credentials to attend critical care patients).

- Provide consultation to patients who may be candidates for HBO₂.
- Perform a history and physical examination.
- Evaluate, diagnose and medically manage *stable* patients.
 - Stable patients are defined as those *not* requiring in-chamber management with intravenous medication, hemodynamic, or ventilatory support.

As noted in Part III, DPMs, where legally permitted and in accordance with their health care system's medical staff bylaws and where an Independent Supervisor of HBO₂ is immediately available, may be eligible to attend HBO₂ treatment of stable patients, in a monoplace chamber, with injuries or wounds below the knee. Health care facilities may, at their discretion, create a subcategory of this privilege level to further define the limited scope of practice for DPMs who attend HBO₂ treatments.

HBO₂ Attendance for Critical Care Patients

Description: The clinical skills required of a provider managing critical care HBO₂ patients include: continuous cardiac monitoring, in-chamber IV infusions, hemodynamic and ventilatory support. Providers in this category must have advanced medical and HBO₂ training to provide appropriate medical management of critically ill patients.

As with stable patients, the conditions for which HBO₂ is used must meet diagnostic criteria for one or more UHMS- or CMS-accepted indications for HBO₂. In addition, the HBO₂ facility or department must concurrently have the technical and logistical capability necessary to medically manage these more complex patients.

PART VII

Initial and Re-Privileging Requirements

Overview

Privileging should be commensurate with a hyperbaric medicine physician's, APP's and DPM's level of education, credentials, and clinical experience. These privileges should be concurrently limited to the scope of treatment capability and indications supported by the HBO₂ treatment facility and its governing body. Accordingly, the health care center's privileging authority shall stratify candidates based on their educational credentials and experience, granting privileges in keeping with the most appropriate capability level and scope of practice as defined by the HBO₂ provider classifications in Part III of this document.

Each provider's HBO₂ privileges should:

- Specify the individual HBO₂ indications the provider is authorized to treat, as well as any specialty procedures that the provider is authorized to perform in conjunction with a patient's evaluation and determination of medical need for HBO₂ treatment.
- Be requested and granted as line-item privileges and specialty procedures, rather than *en bloc*.
- Be limited to only those HBO₂ indications and specialty procedures that are:
 - Included in the list of UHMS-accepted HBO₂ indications (see Part I);
 - Supported, by written policy, for treatment within the health care facility and associated HBO₂ department/clinic.
 - In keeping with the provider's demonstrated licensing, training, practice experience, and credentials (see Parts IV, V, and VI); *and*
 - Commensurate with the level of patient acuity that can be safely managed within the privileging health care facility and its associated HBO₂ department(s)/clinic(s) (e.g., adult, pediatric, stable, complex, critically ill, ventilated, etc.).
- Detail any proctorship or supervision requirements.

For both initial appointment and reappointment, hyperbaric medicine providers must satisfy the minimum education requirements as described in Part IV. In addition, hyperbaric medicine privileges require proof of continuing education and ongoing professional development.

Education and Training

See Minimum Licensing, Education and Training Standards for Attending Hyperbaric Treatments (Part IV).

Board Certification in Undersea and Hyperbaric Medicine

Applicants for UHM privileges are strongly encouraged to achieve and maintain board certification in Undersea and Hyperbaric Medicine by the applicable ABMS or AOA board.

Clinical Experience

Initial application: Applicants for initial clinical privileges in HBO₂ must provide documentation of provision of hyperbaric medicine services within the previous two (2) years commensurate with the scope and complexity of the privileges being requested. This documentation requirement may be waived for applicants who completed UHM fellowship training during the previous two (2) years.

Reappointment: Applicants for reappointment of clinical privileges in HBO₂ must provide documentation of HBO₂ clinical service provision within the previous two (2) years commensurate with the scope of reappointment privileges being requested.

Additional Qualifications: MD/DO applicants must have documentation of having completed a primary residency. The necessity of current board certification in a primary residency for the purpose of granting privileges in hyperbaric medicine is at the discretion of the health care facility. The UHMS recommends formal critical care education and training (e.g., critical care medicine, emergency medicine, and anesthesia), and UHM board certification prior to the provision of HBO₂ treatment to high acuity/critical care patients. Other specialty backgrounds are not necessarily excluded provided there is demonstration of sufficient training and experience with patients with acute disease. Applicants who do not appear to fully satisfy criteria for privileging may be subject to additional proctoring.

Providers with Previous Experience From Outside Institutions

The educational requirements are the same as those outlined in Part IV. However, experienced HBO₂ providers may be eligible for a shorter proctored mentorship/Focused Professional Practice Evaluation (FPPE) process.

Continuing Medical Education (CME) for Initial UHM Credentials or Reappointment

MD/DO or APP applicants seeking either initial UHM credentialing, subsequent reappointment, or are transferring from an outside health care facility must demonstrate completion of a minimum of twelve (12) hours a year or a total of twenty-four (24) hours of Physician Category 1 AMA/AOA PRA CME in hyperbaric medicine-related topics within the preceding two (2) year period.

- If the health care facility credentialing requirements or the requirements of certification agencies exceed these standards, the CME requirements of the physician's health care facility or certification and privileging agencies should be followed.

Reappointment of Hyperbaric Medicine Privileges

Reappointment should be based on an unbiased, objective assessment of each provider's patient care according to the hospital's quality assurance and peer review processes. To be eligible to renew privileges in hyperbaric medicine the applicant must demonstrate:

- Current competence in the supervision and provision of hyperbaric medicine.
 - Guidelines are provided in this document, but hyperbaric departments and health care facilities should create an objective measurement of the skills, knowledge and patient contact experience required to satisfy reappointment.
- Adequate volume of patient experience with acceptable results over the past twenty-four (24) months that is commensurate with the scope of HBO₂ privileges requested.
- Evidence of current physical and mental ability to perform the requested clinical activities is required of all applicants for privilege renewal.
- Satisfaction of completed continuing medical education related to hyperbaric medicine (as described below).⁴

Minimum Clinical Experience and Proof of Continuing Education

- Supervision of twenty-five (25) hyperbaric sessions (as defined in Note iii) within the past twelve (12) months or supervision of fifty (50) hyperbaric sessions over a twenty-four (24) month period.

- Minimum of twelve (12) credit hours of Physician Category 1 AMA/AOA PRA CME in hyperbaric medicine-related topics for each twelve (12) months of hyperbaric practice or twenty-four (24) credit hours in two (2) years.
- It is recommended that physicians show evidence of ongoing self-assessment of knowledge and cognitive skills in the application of hyperbaric medicine (e.g., publications, posters, grand rounds or podium presentations, providing proctorship, and research participation)⁷.

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